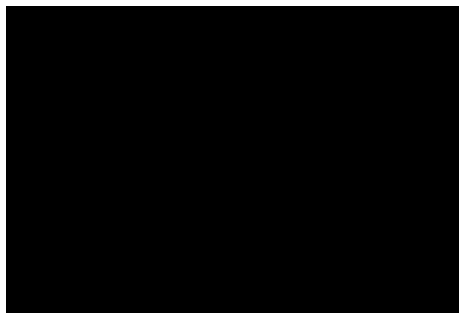
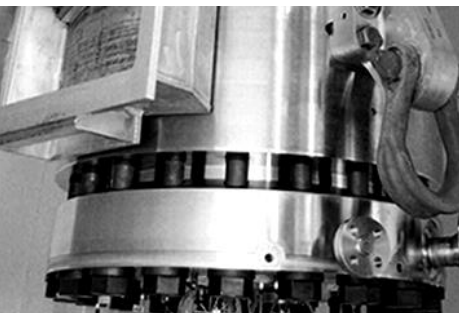
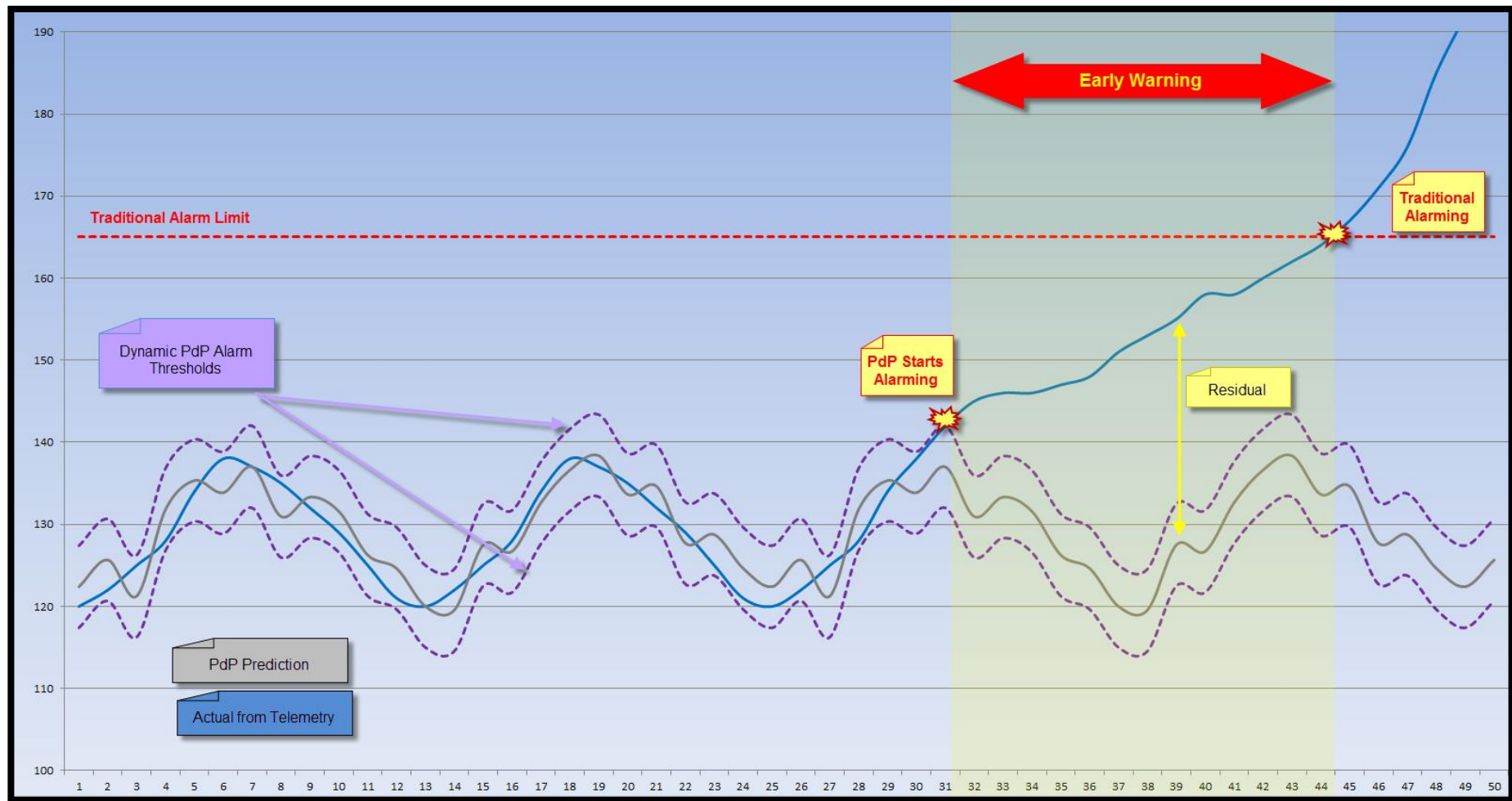




FAMOS PdP Workshop Architect as a Scratchpad



PdP Anomaly Detection



Make reliable predictions and compare with actuals to provide early warning

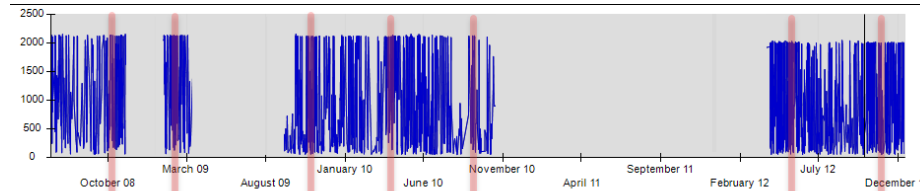
PdP in Runtime

Current Value

Reference File (Normal Data)

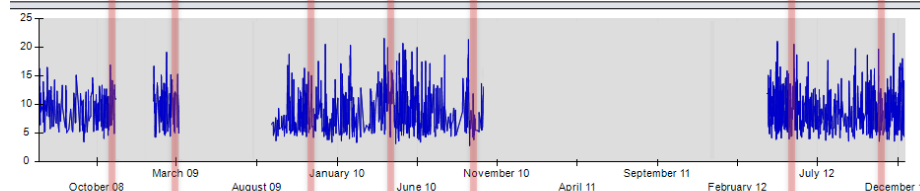
Predicted Value

1800



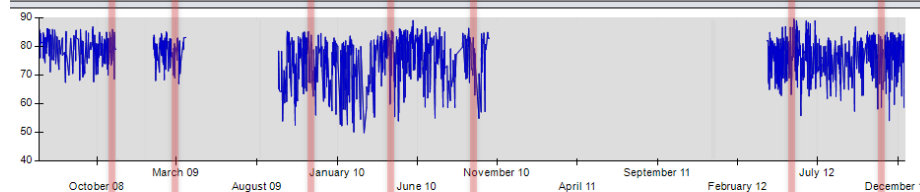
1810

12



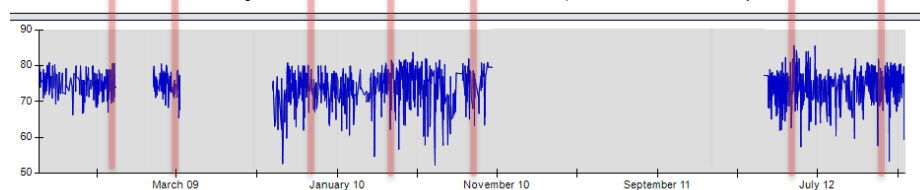
11.8

82



82.1

75



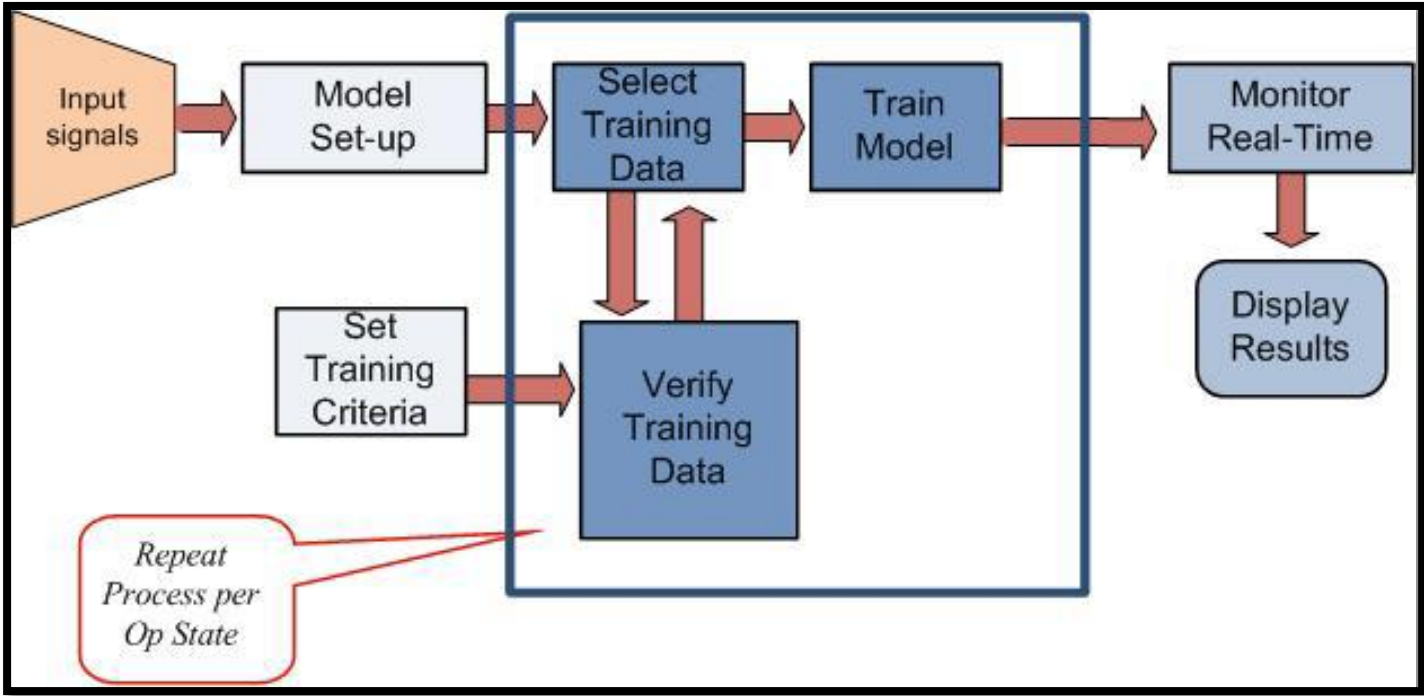
75.3

One
Snapshot
at a time

Find the most similar snapshots in the normal
data regardless of time of year, time of day,
previous operating conditions

Weight Average
most similar
data to predict

PdP Functional Process



FAMOS Architect – PdP Modeling Functionality

- Tools for configuring and building models
 - From scratch (include selection from PI, OPC, FAMOS lists)
 - Copy models within or between databases
 - CSV
 - Store FAMOS data files
 - Spreadsheet-like data manipulation
- Flexible data import features
 - FAMOS Historian
 - PI, OPC
 - CSV
 - Store FAMOS data files
- Data filtering mechanisms; tabular and graphical
- Export Data and Test results
- **Never need to put model in runtime to extract value.** Can be used for post-incident review and analysis (RCA) and off-line diagnostics



PdP Model Configuration – all from one screen

The screenshot displays the PdP Model Configuration software interface. The top menu bar includes options like New File, Restore Backup, Collapse All, Expand All, Full Screen, Download, Update Descriptions, Transfer PdP Alarms, Setup, Browse, Steam, About, Online Help, Tutorials, and Help. The main window is divided into several sections:

- Unit: fossil1 (fossil1.pem)**: A sidebar on the left showing a **Component Tree** with categories like PMA/PdP Models, PMA, and PdP. It lists various components such as Analog Points, Digital Points, Low Load Setup (1), Data Validation (22), Calculated Points (69), APR (0), Air Heater (1), Bogey Curve (192), Convective Stage (8), Cooling Tower (0), Cycle (2), Expansion Line Swing (2), Fan (0), Feedwater Heater (8), Heat Exchanger (0), Mixer (5), Nuclear Turbine, HP Turbine (0), LP Turbine (0), MSR (0), PMA/PEPSE Link (5), Pump (6), Sequence (8), Turbine (8), Report (0), PdP, PdP Models (20), Rules, Rule Variables, Boiler, Condenser, and Turbine.
- PdP Model List**: A table in the center-left showing a list of models with columns for Name, Description, and Units. The list includes models like 1ABFPM, 1ABFPT, 1ACONDBP, 1AFDFAN, 1AFWBP, 1BBFPM, 1BBFPT, 1CONDBP, 1BDFAN, 1CFDFAN, 1CFWBP, 1GENR, 1TURB, A1CRUSHR, A2CRUSHR, ASBAC, B1CRUSHR, B2CRUSHR, and BSBAC.
- PdP Modeling Tabs**: A central area with tabs for Model Setup, Data, Graphical Filtering, Model Testing, Additional Charts, and Calc. Points. The **Model Setup** tab is active, showing settings for the 1ABFPM model. It includes fields for Description, Date Modified, Unit, Bitmap, Prepared By, and Comment. There are also sections for Inputs (Process Rate, Validation Parameter, PdP Cutoff, High Cutoff, Low Cutoff, Alarm Logic) and Outputs (Overlap, Overlap status, Total Abnormal Points, Primary PI Server, Secondary PI Server, Architect Folder).
- PdP Model Sensor Settings and Output Point Numbers**: A table on the right showing sensor settings and output point numbers. The table has columns for Point Tag, Description, Units, Historian Tag ID, Point Type, Signal Active, Validation Type, Alarm Level, Alarm Active, Alarm Basis, Variance Limit Value, Residual LoLimit, Residual HiLimit, and Actual E. The table lists various sensors and their corresponding output point numbers.

Create or Load a Scratchpad Model

- You can work on a copy of a database (even if you don't currently use PdP)
- You can create a new database from scratch, save it and continually reuse
- Just don't download anything (or run on your own client machine just to be safe)

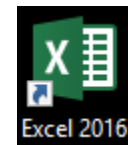
The screenshot shows the 'Model Setup' tab in the PdP software. The 'Inputs' section includes fields for Process Rate (300), Validation Parameter (0.95), PdP Cutoff (PN06739), High Cutoff (100000), Low Cutoff (5), and Alarm Logic (1-60). The 'Outputs' section includes fields for Overlap, Overlap status, and Total Abnormal Points. The 'Work Mgmt IDs (Optional)' section includes a field for PASSPORTID. The 'Currently Active Reference File' section includes a field for PMAX Link. The 'Auto Report Link' section includes a field for Category. The 'Component' section includes a field for Component. The 'Primary PI Server' and 'Secondary PI Server' sections include fields for Primary PI Server and Secondary PI Server. The 'Load from CSV / XML File' and 'Save to CSV / XML File' buttons are visible. The 'Load from PdP Architect' and 'Save to PdP Architect' buttons are visible. The 'Load from PdP Template' and 'Save to PdP Template' buttons are visible. The 'Point Tag' table is shown with columns: Point Tag, Description, Units, Historian Tag ID, Point Type, Signal Active, Validation Type, Alarm Level, Alarm Active, Alarm Basis, Variance Limit Value, Residual Lo Limit, and Residual Hi Limit. The table contains 6 rows of test data. A red arrow points from the 'Point Tag' table to the 'Select Sensor' dialog box. The 'Select Sensor' dialog box shows a list of data points with columns: Point, Point Name, Description, and Unit. The list includes 18 data points, with 'FAN_PHASE_C_AMPS' highlighted. A red arrow points from the 'FAN_PHASE_C_AMPS' row in the 'Select Sensor' dialog box to the 'FAN_PHASE_C_AMPS' row in the 'Point Tag' table. A red arrow points from the 'FAN_PHASE_C_AMPS' row in the 'Point Tag' table to the 'FAN_PHASE_C_AMPS' row in the 'Select Sensor' dialog box. A red arrow points from the 'FAN_PHASE_C_AMPS' row in the 'Point Tag' table to the 'FAN_PHASE_C_AMPS' row in the 'Select Sensor' dialog box.

Point Tag	Description	Units	Historian Tag ID	Point Type	Signal Active	Validation Type	Alarm Level	Alarm Active	Alarm Basis	Variance Limit Value	Residual Lo Limit	Residual Hi Limit
TEST1	TEST1	IN		DCS	Yes	Off	Default	Yes	Variance	3	0	0
TEST2	TEST2	DEG		DCS	Yes	Off	Default	Yes	Variance	3	0	0
TEST3	TEST3	PSI		DCS	Yes	Off	Default	Yes	Variance	3	0	0
TEST4	TEST4	MIL		DCS	Yes	Off	Default	Yes	Variance	3	0	0
TEST5	TEST5	RPM		DCS	Yes	Off	Default	Yes	Variance	3	0	0
TEST6	TEST6	SECOND		DCS	Yes	Off	Default	Yes	Variance	3	0	0

Point	Point Name	Description	Unit
0	ZERO	ZERO POINT	
1	FAN_POWER	FAN POWER	KW
2	FAN_REACT_POWER	FAN REACT POWER	KVAR
3	FAN_CURRENT	FAN CURRENT	AMPS
4	FAN_FREQUENCY	FAN FREQUENCY	HZ
5	FAN_PHASE_A_AMPS	FAN PHASE A AMPS	AMPS
6	FAN_PHASE_B_AMPS	FAN PHASE B AMPS	AMPS
7	FAN_PHASE_C_AMPS	FAN PHASE C AMPS	AMPS
8	FAN_PHASE_A-B_VOLTS	FAN PHASE A-B VOLTS	V
9	FAN_PHASE_B-C_VOLTS	FAN PHASE B-C VOLTS	V
10	FAN_PHASE_C-A_VOLTS	FAN PHASE C-A VOLTS	V
11	FAN_FAN_DE_BRG_TEMP	FAN FAN DE BRG TEMP	C
12	FAN_FAN_NDE_BRG_TEMP	FAN FAN NDE BRG TEMP	C
13	FAN_MTR_DE_BRG_TEMP	FAN MTR DE BRG TEMP	C
14	FAN_MTR_NDE_BRG_TEMP	FAN MTR NDE BRG TEMP	C
15	FAN_MTR_VIBG_TEMP	FAN MTR VIBG TEMP	C
16	FAN_FAN_VIB_VERT	FAN FAN VIB VERT	MMMS
17	FAN_FAN_VIB_HORZ	FAN FAN VIB VIB HORZ	MMMS
18	FAN_FAN_VIB_AXIAL	FAN FAN VIB VIB AXIAL	MMMS



If you have exiting PdP models, you can use them. Or... just build a new one



What Can Be Done with the Scratchpad (or real) Model

Import Data by Multiple Means

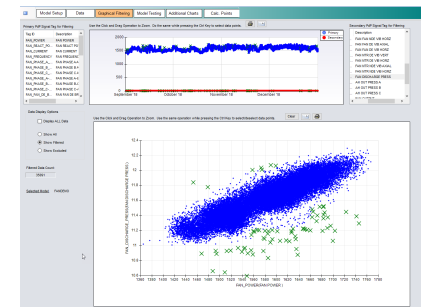
The 'Data' tab interface includes the following sections:

- File Operations:** Load Training Data from CSV, Save as CSV File, Load from PdP Test Data File, Save as PdP Test Data, Load from R*TIME Ref File, Save as R*TIME Ref File, Load from PdP Architect File, Save as PdP Architect File.
- Selected Model:** Filtered Data Count: 0, Import CSV to DAT, Import R*TIME Ref File, Fill Missing Data from R*TIME, Fill Missing Data from Historian, Remove Graphical Filter, Fill Lower Limit with -9998, Clear All, Add Row, Uncheck All, Sort by Date.
- Reference File Cleansing:** Target # Datasets, Use Overlap Threshold, Run Clean, Remove Filter.
- Get New Historian Data:** Start Time (01/10/2020 03:05 PM), End Time (01/10/2020 03:05 PM), Sample Freq (1 Hours), Create New Table from R*TIME, Recalculate Equations, Create New Table from Historian, Apply High/Low Cutoff.

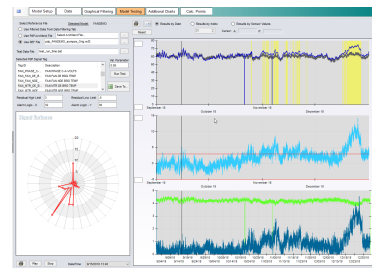
- Fast Downloads of large amounts of data from historians like OSI PI
- Use CSV DATA
- Include Calcs in your model and process after data import

Clean and or Massage the data to suit your needs

Excluded	Index	Date	FAN_POWER	FAN_REACT_POWER	FAN_CURRENT	FAN_FREQUENCY	FAN_PHASE_A_AMPS	FAN_PHASE_B_AMPS	FAN_PHASE_C_AMPS	FAN_PHASE_A-B_VOLTS	FAN_PHASE_B-C_VOLTS	FAN_PHASE_C-A
		Filtered Data Max:	1766.624	969.373	288.0294	60.06	286.737	289.14	286.875	4224.499	4231.594	4229.895
		Filtered Data Min:	0	0	0	0	0	0	0	0	0	0
		Filtered Data Avg:	1580.299	884.2059	256.959	59.92131	256.5273	258.3243	256.7587	4057.382	4063.156	4060.923
		Filter High:										
		Filter Low:										
		Apply Equation:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	1	9/1/2018 00:00	1443.272	838.9747	235.1119	60.01	235.693	236.646	235.873	4082.081	4085.239	4084.328
<input type="checkbox"/>	2	9/1/2018 00:05	1439.735	837.3741	235.3666	60.01	235.01	236.674	235.173	4084.958	4088.266	4088.347
<input type="checkbox"/>	3	9/1/2018 00:10	1439.289	835.2993	234.8373	59.99		234.442	234.442	4087.086	4090.69	4091.819
<input type="checkbox"/>	4	9/1/2018 00:15	1415.476	827.8246	232.8231	60		232.661	232.661	4083.084	4086.163	4086.809
<input type="checkbox"/>	5	9/1/2018 00:20	1415.003	830.4407	231.839	60.01		231.591	231.591	4090.838	4093.996	4095.072
<input type="checkbox"/>	6	9/1/2018 00:25	1423.703	834.8673	233.0749	60.03		232.8	232.8	4094.644	4098.198	4099.05
<input type="checkbox"/>	7	9/1/2018 00:30	1430.993	840.9312	236.4852	59.99		236.545	236.545	4083.817	4089.035	4088.074
<input type="checkbox"/>	8	9/1/2018 00:35	1430.369	833.4824	232.4569	60.02		233.511	233.511	4081.375	4084.798	4085.524
<input type="checkbox"/>	9	9/1/2018 00:40	1432.563	833.4335	235.0204	59.97		234.397	234.397	4086.685	4090.774	4090.465
<input type="checkbox"/>	10	9/1/2018 00:45	1429.806	831.9542	235.8613	60	233.192	233.763	232.977	4090.839	4094.073	4094.223
<input type="checkbox"/>	11	9/1/2018 00:50	1423.91	830.5871	233.0947	59.98	233.771	233.761	232.938	4089.384	4088.776	4089.184



Create a reference file and run tests of time periods of interest



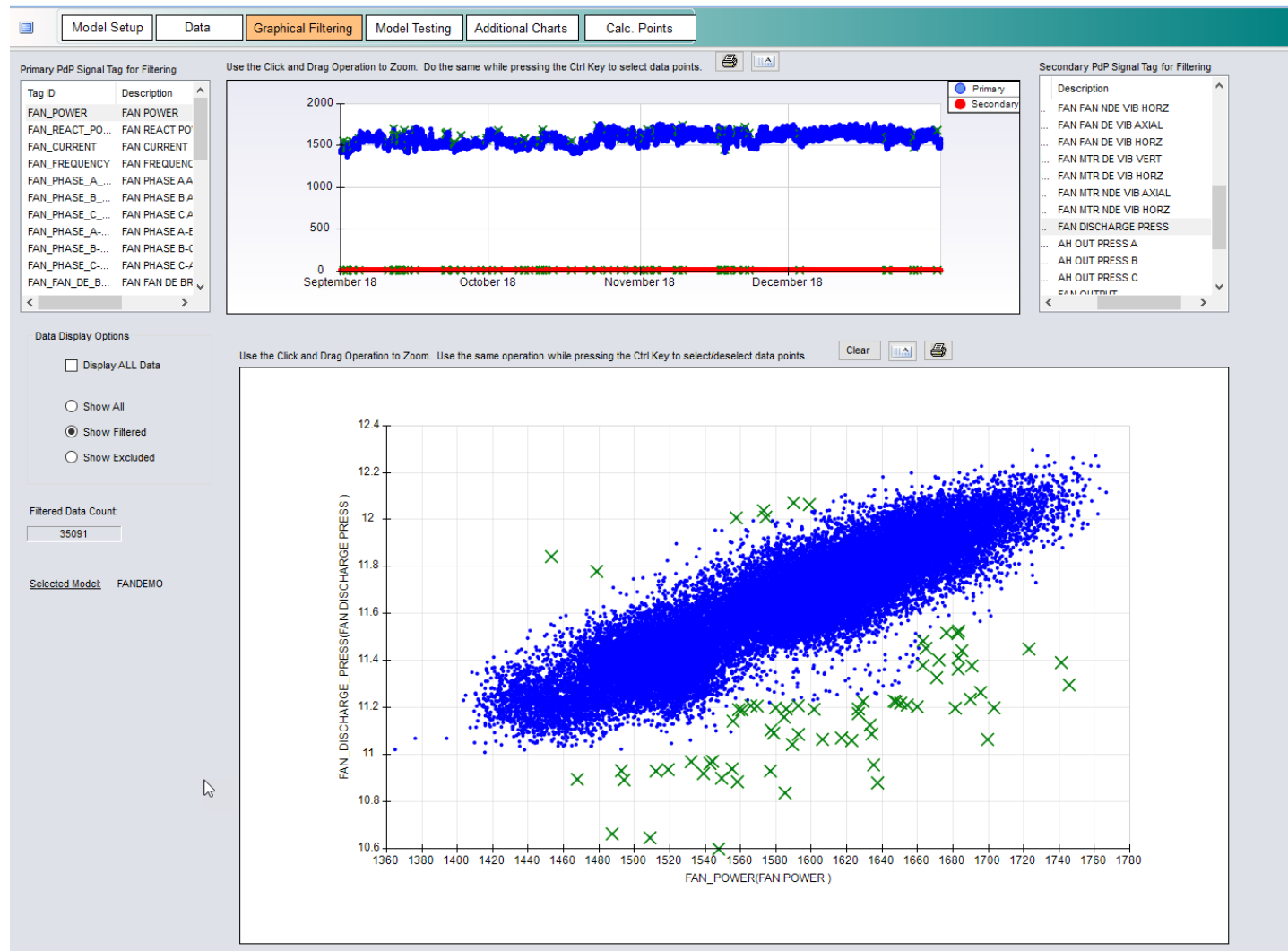
Data Wrangling – Tabular Tools

Excluded	Index	Date	I_PHASE_C-A_VOLTS	FAN_FAN_DE_BRG_TEMP	FAN_FAN_NDE_BRG_TEMP	FAN_MTR_DE_BRG_TEMP	FAN_MTR_NDE_BRG_TEMP	FAN_MTR_WDG_TEMP	FAN_FAN_NDE_VIB_VERT	FAN_FAN_NDE_VIB_HORZ	FAI
		Filtered Data Max:	3.895	50.32653	42.75817	75.47301	70.57494	113.7878	1.097112	1.576897	3.18
		Filtered Data Min:	0.309	28.4912	28.12499	54.91943	50.25023	54.06493	0.4741143	0.7877532	0.84
		Filtered Data Avg:	3.118	33.35387	33.31338	62.14423	57.9763	73.85998	0.7108146	1.169303	1.32
	Filter	Filter High:									
		Filter Low:									
Delete		Apply Equation:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	34	9/1/2018 02:45	1.822	46.55761	41.24755	-9999	57.07091	61.17553	0.7006628	1.446922	1.50
<input type="checkbox"/>	35	9/1/2018 02:50	1.077	46.84752	41.30859	-9999	56.99461	61.17553	0.7006628	1.404911	1.65
<input type="checkbox"/>	36	9/1/2018 02:55	7.475	46.69494	41.30859	-9999	56.93359	61.17553	0.7006628	1.314963	1.52
<input type="checkbox"/>	37	9/1/2018 03:00	5.414	46.84752	41.24755	-9999	56.99461	61.17553	0.7006628	1.284309	1.39
<input type="checkbox"/>	38	9/1/2018 03:05	9.856	46.19139	41.24755	-9999	56.79625	61.17553	0.7006628	1.272328	1.40
<input type="checkbox"/>	39	9/1/2018 03:10	0.402	46.09985	41.30859	-9999	56.85729	61.17553	0.7006628	1.238901	1.41
<input type="checkbox"/>	40	9/1/2018 03:15	4.912	46.13036	41.24755	-9999	56.78099	61.17553	0.7006628	1.198524	1.38
<input type="checkbox"/>	41	9/1/2018 03:20	5.943	46.03881	41.40014	-9999	56.78099	61.17553	0.7006628	1.180302	1.35
<input type="checkbox"/>	42	9/1/2018 03:25	3.84	46.26769	41.38488	-9999	56.71996	61.17553	0.7006628	1.169028	1.44
<input type="checkbox"/>	43	9/1/2018 03:30	3.951	46.26769	41.38488	-9999	56.64367	60.33629	0.6293832	1.15436	1.54
<input type="checkbox"/>	44	9/1/2018 03:35	2.268	46.6339	41.38488	-9999	56.64367	60.50414	0.6439853	1.22539	1.58
<input type="checkbox"/>	45	9/1/2018 03:40	5.211	46.71019	41.46117	-9999	56.56737	60.36681	0.6433493	1.269626	1.62
<input type="checkbox"/>	46	9/1/2018 03:45	7.294	46.90856	41.46117	-9999	56.50633	60.01586	0.6408206	1.305558	1.50
<input type="checkbox"/>	47	9/1/2018 03:50	3.126	46.20666	41.38488	-9999	56.44531	60.0769	0.6602103	1.289871	1.37
<input type="checkbox"/>	48	9/1/2018 03:55	3.636	45.68786	41.36962	-9999	56.43005	60.06163	0.6823921	1.257742	1.36
<input type="checkbox"/>	49	9/1/2018 04:00	7.201	46.03881	41.38488	-9999	56.35375	60.12267	0.6562873	1.218974	1.36
<input type="checkbox"/>	50	9/1/2018 04:05	9.13	45.90148	41.38488	-9999	56.33849	59.93956	0.6240941	1.177931	1.40
<input type="checkbox"/>	51	9/1/2018 04:10	3.898	45.70311	41.38488	-9999	56.27746	60.09216	0.6856959	1.150863	1.44
<input type="checkbox"/>	52	9/1/2018 04:15	5.022	45.10802	41.32384	-9999	56.35375	60.24474	0.7591657	1.128109	1.42
<input type="checkbox"/>	53	9/1/2018 04:20	7.111	45.68786	41.38488	-9999	56.35375	60.36681	0.7609366	1.18365	1.40
<input type="checkbox"/>	54	9/1/2018 04:25	9.785	44.77233	41.40014	-9999	56.27746	60.71776	0.7538191	1.264269	1.63

- Simple tools to address whole columns or ranges of data
- Copy and paste to and from a spreadsheet
- Fill in Missing Data by creating a reference file for periods when all the sensor data is normal and use to predict data for periods when select sensors were bad

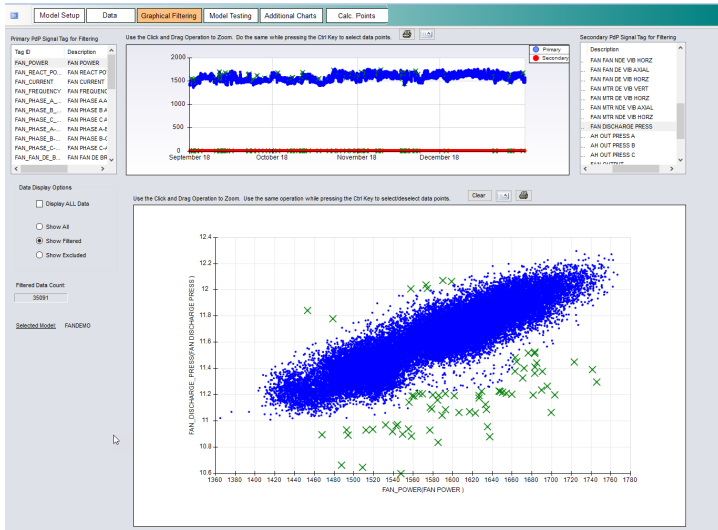
Data Wrangling

Graphical Tools

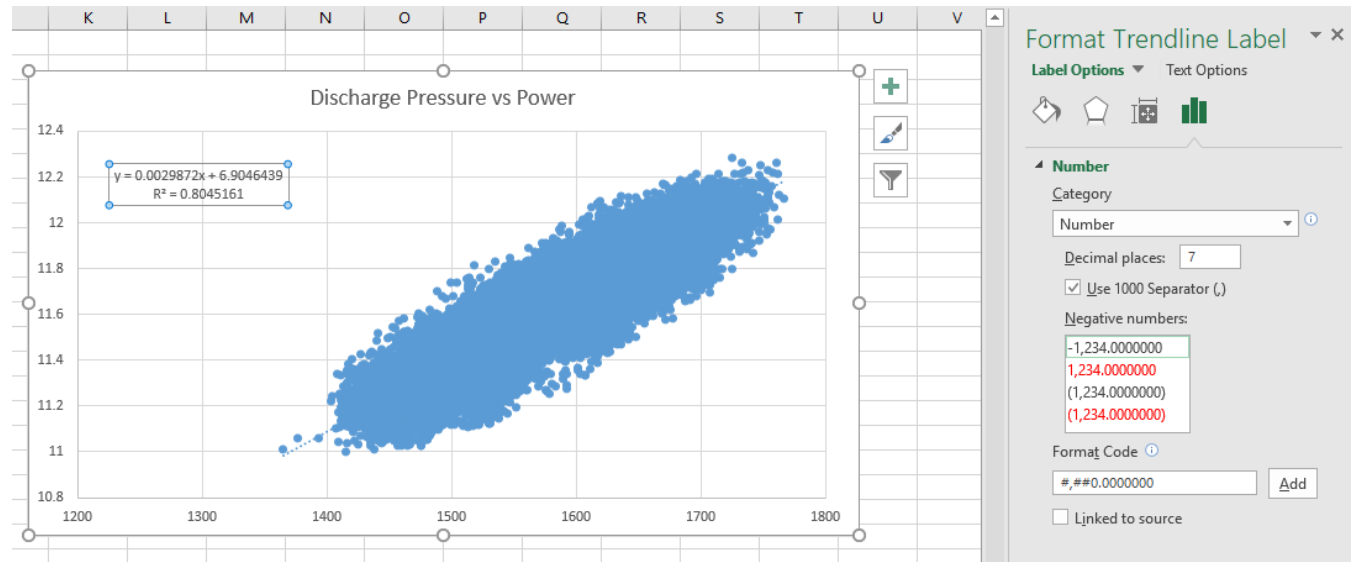


- Temporarily highlight data to match time of occurrence to x-y relationship to assess outlier or clusters
- Mark datapoints to be excluded when data is saved
- No data is discarded until the data is saved

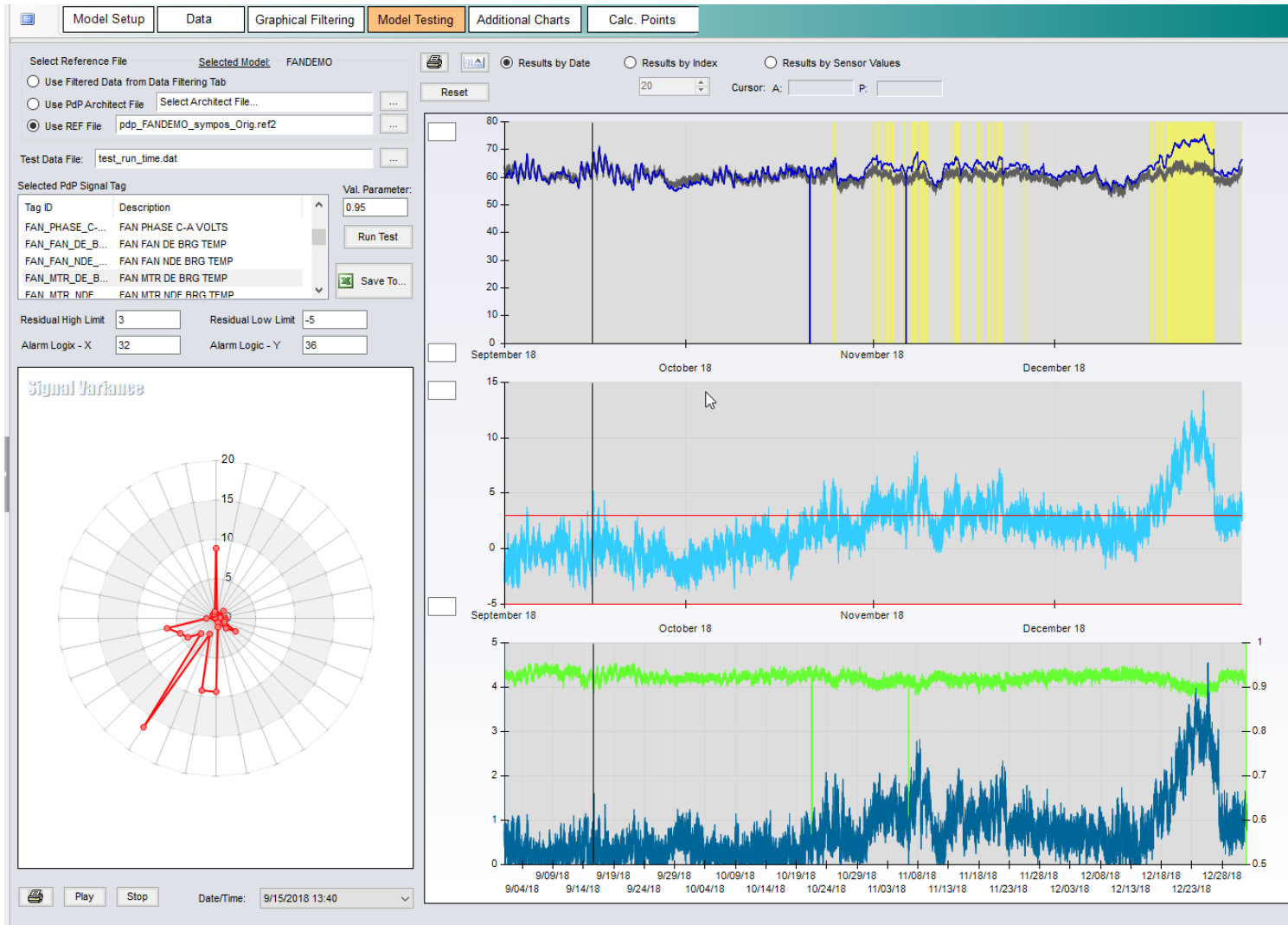
Simple Use - Clean Data to Use in Curve Fitting



Be careful of
number
formatting in
equations
provided in Excel
... make sure to
format to get
enough
significant figures



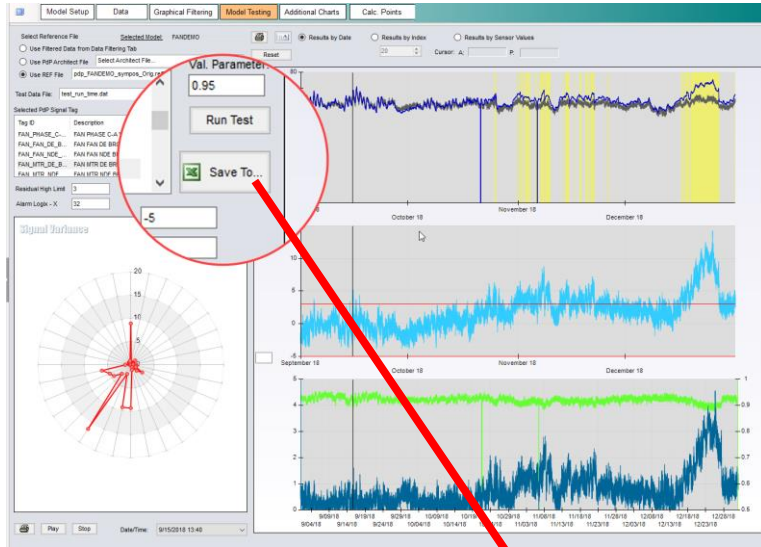
Root Cause Analysis or Near Real Time Troubleshooting



Multiple Synchronized Charts



PdP Model Configuration – all from one screen



FanPdPOutputs.xlsx - Excel

Herzau, James

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
1	Date	FAN POW	FAN REA	FAN CUR	FAN FRE	FAN FAN	FAN PHA	FAN PHA	FAN PHA	FAN PHA	FAN PHA	FAN PHA	FAN PHA	FAN MTR	FAN MTR	FAN MTR	FAN FAN	FAN FAN	FAN FAN	FAN FAN	FAN FAN	FAN MTR	FAN MTR	FAN MTR	FAN MTR	FAN DIS	CAH OUT	IAH OUT	IAH OUT	IAH OUT
2	9/1/2018	0	1444.67	839.367	235.569	60.0122	235.675	237.055	235.465	4084.19	4088.83	4086.02	4081.24	38.0999	63.8308	57.8949	65.6622	0.632249	0.926394	1.16242	1.65334	1.69515	0.941813	1.05416	0.995075	11.9599	11.0387	11.0286	11.04	35.5944
3	9/1/2018	0	1434.11	840.866	233.918	60.0147	233.459	235.258	233.666	4097.78	4102.06	4099.83	45.3184	37.9919	63.388	58.2179	66.7143	0.63394	0.940639	1.15834	1.65819	1.71235	0.935067	1.05977	0.955302	11.8614	10.9032	10.8856	10.8978	35.9434
4	9/1/2018	0	1438	843.772	234.324	60.0028	234.098	235.449	233.975	4103.29	4107.05	4104.83	46.7704	38.2222	62.5492	57.5083	64.826	0.630199	0.917401	1.14623	1.64362	1.72714	0.947854	1.06294	0.994327	11.8322	10.8999	10.8862	10.8964	36.1319
5	9/1/2018	0	1434.35	843.494	234.301	60.0101	233.624	234.894	233.798	4101.64	4105.9	4104.05	47.559	37.5473	62.8871	58.2881	65.172	0.63428	0.921846	1.15999	1.64718	1.72756	0.95575	1.0573	0.953235	11.7125	10.8527	10.8322	10.8466	34.9872
6	9/1/2018	0	1433.07	841.811	232.267	60.0115	233.054	234.864	233.361	4102.73	4107.75	4105.38	46.9723	38.5917	64.3107	58.7194	65.7771	0.647852	0.941572	1.20291	1.63969	1.66952	0.959383	1.05694	0.985471	12.0299	11.0963	11.0717	11.0911	34.6871
7	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
8	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
9	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
10	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
11	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
12	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
13	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
14	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
15	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
16	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
17	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
18	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
19	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
20	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
21	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
22	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
23	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
24	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
25	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
26	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
27	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
28	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
29	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
30	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
31	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
32	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565	0.954302	1.07305	0.982557	11.9374	10.9959	10.9777	10.9905	35.0344
33	9/1/2018	0	1427.33	838.942	232.63	60.0147	232.276	233.643	232.552	4103.67	4107.89	4105.67	46.7797	38.7835	63.7634	57.6434	64.7013	0.629059	0.91875	1.1598	1.65104	1.69565								

- **PdP is an integral part of FAMOS**
- **You can realize value from PdP Functionality even if you don't run models in real time**
- **Creating usable data can be a significant effort**
- **FAMOS Architect PdP tools can make creating usable data more manageable**

Questions





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